



# UNITED STATES PATENT AND TRADEMARK OFFICE

001

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,356	07/30/2001	Kenichi Miyoshi	L9289.01164	1590

7590 06/08/2005

Stevens David Miller & Mosher  
Suite 850  
1615 L Street NW  
Washington, DC 20036

EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT PAPER NUMBER

2637

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/890,356		MIYOSHI, KENICHI	
	<b>Examiner</b>		<b>Art Unit</b>	
	Qutub Ghulamali		2637	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-15 and 20 is/are rejected.
- 7) ☒ Claim(s) 16-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13-15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent 6,151,328) in view of Lomp et al (US Patent 5,799,010).

Regarding claims 13 and 20, Kwon discloses a communication antenna diversity system comprising:

a first channel estimator (fig. 5, element 135) that calculates first channel estimation values, corresponding respectively to a plurality of antennas (elements 1, 2..k) in base station apparatus, using a plurality of common known signals that are transmitted from the plurality of antennas, respectively (col. 2, lines 34-56, 65; col. 6, lines 31-49). Kwon however is silent regarding phase correction for use in phase correction of phase rotations applied to transmitted communication channel signals from the plurality of antennas, a receiver that receives the communication channel signals and a phase corrector that phase corrects the received signal. Lomp in a similar field of endeavor discloses;

a phase correction amount calculator (phase error, see col. 33, lines 35-52) that calculates phase correction amounts, based on the first channel estimation values for use in correction of phase

Art Unit: 2637

rotations applied to communication channel signals that are transmitted from the plurality of antennas respectively (col. 35, lines 48-56);

a receiver that receives the communication channel signals to which phase rotations are applied at the plurality of antennas and transmitted (col. 39, lines 23-30); and

a phase corrector that phase corrects the received communication channel signals which are calculated from the received communication channel signals according to the phase correction amounts (col. 33, lines 35-52; col. 35, lines 48-56). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a phase corrector calculate and correct phase of the channel estimate values and a receiver for receiver for receiving the communication channel as taught by Lomp in the system of Kwon because it can allow error estimation and correction of transmitted phase shifted signals in a multipath environment with greater access to users.

3. Claims 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent 6,151,328) in view of Lomp et al (US Patent 5,799,010) as applied to claims 13 and 20 above, and further in view of Sawahashi et al (US Patent 6,069,912).

Regarding claim 14, Kwon and Lomp combined discloses every feature of the claimed invention. Kwon and Lomp however does not explicitly discloses a transmitter transmit feedback information representing phase shift amounts to the base station apparatus. Sawahashi in a similar field of endeavor discloses a transmitter transmit feedback information representing phase shift amounts to the base station apparatus (col. 3, lines 5-9, 16-27, 65-67). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was

Art Unit: 2637

made to use a transmitter transmit feedback information representing phase shift amounts to the base station apparatus as taught by Sawahashi in the system of Kwon and Lomp so as to maximize and improve reception quality of the signals.

Regarding claim 15, Kwon and Lomp in combination discloses every feature of the claimed invention but is silent regarding a weight averager perform weighting average with the second channel estimation values over a plurality of slots in the communication channel signals. Sawahashi in a similar field of endeavor discloses a weighting averager that performs weighting averaging with the second channel estimation values, which are subject to the phase correction by the phase corrector, over a plurality of slots in the communication channel signals (col. 10, lines 29-45). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a weighting averager that performs weighting averaging with the second channel estimation values, over a plurality of slots in the communication channel signals as taught by Sawahashi in the system of Kwon and Lomp so that the initial values corresponding to the weighted directions, enabled by the weighted coefficients, converge quickly.

***Allowable Subject Matter***

4. Claims 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

Alamouti et al (USP 6,185,258) shows a transmitter diversity technique for wireless communication.

Hayashi (USP 6,252,864) discloses a CDMA communication apparatus with different spreading codes from multiple antennas.

Art Unit: 2637

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014.

The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG.  
June 1, 2005.



**JAY K. PATEL**  
**SUPERVISORY PATENT EXAMINER**